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Sibling Role, Parenting Pattern, Maternal Education and Knowledge, and Their Associations with Speech-Language Ability of Children Aged 3-5 Years Old in Karanganyar, Central Java

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ABSTRACT

Background: Speech-language ability is one of several developmental abilities that must be mastered by children under-five. Data from the Central Bureau of Statistics showed that in 2014 there were 131 children under-five with speech-language ability problem. This study aims to determine the associations between sibling role, parenting pattern, maternal education and knowledge, and speech-language ability of children 3-5 years old.

Subjects and Method: This was an analytic observational study using cross sectional design. The study was carried out in Gondangrejo Sub-District, Karanganyar District, Central Java. A sample of 80 children aged 3-5 years old were selected for this study by random sampling. The dependent variable was speech-language ability. The independent variables were sibling role, parenting pattern, maternal education, and knowledge. The data were collected by a set of pre-tested questionnaire. Logistic regression was employed for data analysis.

Results: Sibling role (OR= 13.23; 95% CI= 2.42 to 72.45; p=0.003), parenting pattern (OR= 7.58; 95% CI= 1.47 to 38.96; p= 0.015), maternal knowledge (OR= 9.64; 95% CI= 2.10 to 44.17; p= 0.004), and maternal education (OR=7.84; 95% CI= 1.47 to 41.96; p=0.016) were associated with speech-language ability.

Conclusion: Sibling role, parenting pattern, maternal knowledge, and maternal education are associated with speech-language ability

Keywords: sibling, parenting pattern, education, speech-language

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BACKGROUND

Speech-language ability is the ability to respond to voices, follow orders, and speak spontaneously. Language development is the key for children to share information with their environment. Children who experience language problems in their speech, automatically the communication process is not smooth (Soetjningsih, 2014). This study focuses on language skills in children aged 3-5 years, because in this age range the speech-language skills of children experience rapid and complex development.

Hamaguchi (2010) argues that 3-5 years of age is pre-school age, this time the children's speech-language ability began to be widely applied in their social life. Surely there are many determinants that may be associated with the process of developing a child's speech-language, such as the role of siblings, parenting pattern, maternal education, and maternal knowledge about their child's development. Furman in Criss and Shaw (2005) defines relationships between siblings as relationships characterized by four dimensions, namely relative status/power, rivalry warmth/closeness and conflict.

Cicirelli (1996) in his study stated that relationships between siblings can lead to positive feelings and negative feelings. Positive feelings include compassion, protection and mutual help. Negative feelings include jealousy, hate, and anger so that it can lead to competition and hostility. Positive or negative emotional ties will give rise to different behavioral reactions to their siblings. The presence of siblings can act as an emotional support, rivals and friends of communication.

The parenting pattern is closely related to the ability of the family to provide attention, time, and support to meet the needs of the child both physically, mentally, and socially during their growth and development. The school, community, and community environment are responsible for providing safe and healthy conditions for children (Latifah et al., 2009). The parenting pattern style is a psychological construction that is shown by looking at how parents care for their children everyday. This includes all activities in parenting, both individually and collectively, where all activities involve communication skills (Jeynes, 2000).

Sahibuddin (2010) states that parental education levels will influence behavior in daily life both at home and outside the home. Eryanto and Rika (2013) state that highly educated parents understand at least their children's educational needs and strive to provide support and facilitation as well as possible than parents with low education.

Parental education, especially maternal education is one of the important factors for child development. Good education will make it easier for someone to receive all information from outside, especially about how to take good care for children, how to maintain children's health,

and how to educate children well (Soetjningsih, 2014).

The prevalence of children aged 24-59 months who experienced disability in 2013 was 0.53%, of which one of the problems was hearing loss (Ministry of Health Data and Information Center, 2014). Based on the Social Protection Program Data Collection in 2011, there were 130,572 children with disabilities from poor families, consisting of: physically and mentally handicapped (19,438 children); involuntary (32,990 children); blind (5,921 children); deaf (3,861 children); speech impaired (16,335 children); deaf and speech impaired (7,632 children); blind, deaf and speech impaired (1,207 children); deaf, speechless, and disabled (4,242 children); deaf, speech impaired, blind, and disabled (2,991 children); mental retardation (30,460 children); and former people with mental disorders (2,257 children). This data is spread throughout Indonesia with the highest proportion in Central Java, East Java and West Java (Mujaddid, 2014). Based on these data, it can be seen that most have problems with children's speech-language skills.

Gondangrejo Subdistrict is considered as the district with the highest number of disabilities in Karanganyar Regency, where one of the conditions is a speech-language disorder. The number of cases of child speech-language disorders in Gondangrejo District in 2014 reached 131 cases (BPS Karanganyar, 2015). This condition is quite alarming so that there needs to be an effort both promotive, preventive, curative, and rehabilitative so that disability conditions can be handled properly.

This study aims to analyze the associations between sibling role, parenting pattern, maternal education and knowledge, and speech-language ability of children in Gondangrejo Subdistrict, Karang-

anyar Regency using logistic regression analysis.

SUBJECTS AND METHOD

1. Study Design

This was an analytic observational study with a cross sectional design. The study was conducted in Gondangrejo Subdistrict, Karanganyar Regency, Central Java, from March to May 2017.

2. Population and Sample

The population of this study were all mothers who had children aged 3-5 years in Gondangrejo Subdistrict, Karanganyar Regency. Sample size was measured based on the hair formula, where each independent variable studied required a sample of 15-20 subjects (Hair et al., in Murti, 2013). The number of study subjects as many as 80 mothers who have children aged 3-5 years were selected using the sample randomized sampling method.

3. Study Variables

The dependent variable was speech-language ability. The independent variables

Table 1. Instrument reliability test results

Questionnaire	Cronbach's Alpha	Number of questions
Sibling role	0.903	10
Parenting pattern	0.956	30
Maternal knowledge	0.872	10
Speech-language ability	0.731	18

6. Data Analysis

Bivariate analysis technique used Chi-Square. Multivariate analysis used multiple logistic regression.

RESULTS

1. Characteristics of Study Subjects

Table 2 showed sample characteristics. Table 2 showed that as many as 31.3% mothers had low education (elementary school). Most of the siblings' roles were below average (55%). Most children get parenting pattern above the average

were the role of siblings, parenting pattern, education level, and maternal knowledge.

4. Operational Definition of Variables

The role of siblings in this study were various siblings involvement in the development process of the child's speech-language skills.

Parenting pattern was mother behavior in giving care to their children. Maternal education was the last formal education level completed by the mothers. Maternal knowledge was the level of maternal knowledge about the status of the speech-language development of their children. Speech-language ability was child ability to express ideas, desires, and feelings verbally to others according to age.

5. Study Instrument

The questionnaire was used to obtain data about the role of siblings, parenting pattern, maternal knowledge, and speech-language skills. The results of the reliability test are shown in Table 1.

(51.3%). Most of the mothers have less maternal knowledge (57.5%). The most speech-language ability of children is below the average (57.5%).

2. Bivariate Analysis

Bivariate analysis using the Chi Square test is shown in Table 3. The results of the analysis showed that there was a role of siblings, parenting pattern, maternal education, and maternal knowledge related to improving children's speech-language ability. These results indicated to be statistically significant.

Table 2. Frequency distribution of study variables

Variable	Category	n	%
Education	Not going to school	2	2.5
	Elementary school	25	31.3
	Junior high school	11	13.8
	Senior high school	23	28.8
	Bachelor degree	19	23.8
Siblings' role (score)	Low (<6)	44	55.0
	High (≥6)	36	45.0
Parenting pattern (score)	Poor (<87)	39	48.8
	Good (≥87)	41	51.3
Maternal knowledge (score)	Low (<7)	46	57.5
	High (≥7)	34	42.5
Education level	< 9 years (<Senior high school)	38	47.5
	≥9 years (≥Senior high school)	42	52.5
Speech-language ability	Poor (<12)	46	57.5
	Good (≥12)	34	42.5

Table 3. The results of the bivariate analysis of the relationship between the role of siblings, parenting pattern, maternal education level and maternal knowledge on children's ability to speak the language

Independent Variable	Children's speech- language ability				Total		OR	p
	Good		Poor					
	n	%	n	%	n	%		
Siblings' role								
Under average (<6)	26	32.5	10	12.5	36	45	11.70	<0.001
Above average (≥6)	8	10	36	45	44	55		
Parenting pattern								
Under average (<87)	28	35	13	16.2	36	51.2	11.85	<0.001
Above average (≥87)	6	7.5	33	41.3	44	48.8		
Maternal Education								
< 9 years (<Senior High School)	5	6.3	33	41.2	38	47.5	14.72	<0.001
≥9 years (≥Senior High School)	29	36.2	13	16.3	42	52.5		
Maternal knowledge								
Poor (<7)	26	32.5	8	10	34	42.5	15.44	<0.001
Good (≥7)	8	10	38	47.5	46	57.5		

3. Multivariate Analysis

Multivariate analysis used logistic regression to determine the relationship of the role of siblings, parenting pattern, maternal education and maternal knowledge to children's speech-language ability in Gondangrejo Sub-District, Karanganyar District.

There was a relationship between the role of siblings and children's speech-language ability (OR= 13.23; 95% CI= 2.42 to 72.45; p= 0.003). The presence of siblings in the interaction with children was 13.23

times more likely to increase the speech-language ability of a child compared to the low involvement of siblings. These results were statistically significant.

There was a relationship between parenting pattern and children's speech-language ability (OR= 7.58; 95% CI= 1.47 to 38.96; p= 0.015). Children who got good parenting had the possibility of 7.58 times greater speech-language ability than children who did not get good parenting. These results were statistically significant.

There was a relationship between the maternal education level and children's speech-language ability (OR= 7.84; 95% CI= 1.47 to 41.96; $p= 0.016$). Children whose mothers had high level of education were 7.84 times more likely to have good speech-language ability compared to children who had mothers with lower levels of education. These results were statistically significant.

There was a relationship between maternal knowledge and children's speech-language ability (OR= 7.84; 95% CI= 1.47 to 41.96; $p= 0.016$). C (OR= 9.64; 95% CI = 2.10 to 44.17; $p= 0.004$). Good maternal

knowledge of children's language speaking ability are 9.64 times more likely to have children with better speech-language ability than mothers who had no knowledge of children's language ability. These results were statistically significant.

Nagelkerke R^2 value was 0.724 or 72.4% which means that the variables of sibling role, parenting pattern, maternal education, and maternal knowledge were able to explain children's speech-language ability by 72.4%. The remaining 27.6% of the child's speech-language was influenced by other variables that were not examined.

Table 4. Results of logistic regression analysis on the relationship of the role of siblings, parenting pattern, maternal education level, and maternal knowledge and children's speech-language ability

Independent Variabel	OR	CI 95%		P
		Lower Limit	Upper Limit	
Sibling role	13.23	2.42	72.45	0.003
Parenting pattern	7.58	1.47	38.96	0.015
Maternal knowledge	9.64	2.10	44.17	0.004
Maternal education level	7.84	1.47	41.96	0.016
Nagelkerke $R^2=0.72$				

DISCUSSION

1. Relationship between sibling role and speech-language ability

The results of the statistical tests showed that the role of siblings was related to the improvement of children's speech-language ability and it was statistically significant. The better the interaction between siblings and children, the better the children's speech-language ability.

Odds Ratio (OR) value was 13.23. The meaning of that value was the presence of siblings in the interaction with the child had a possibility of 13,230 times greater in increasing the child's speech-language ability compared to the low involvement of siblings.

The communication pattern of siblings in interactions at home contributed to children's speech-language abilities. It meant that speech patterns in the inter-

action between children and their siblings would develop following the speech patterns of siblings who were more mature in their development. Likewise, the use of language between the two would also develop following the ability of the siblings' language. This is in accordance with the opinion of Bridges et al., (2014) which states that in daily interactions, children's speech-language ability tend to be more derived from the patterns of speech of their older siblings than by their own parents.

Siblings became an inseparable part of the socialization process at home, where in the process one of them was involving the child's speech language ability. For example, if your brother speaks screaming, your younger sibling will also tend to emulate it. Conversely, if you talk well and tell a lot, your younger sister will also imitate the pattern. Jensen et al., (2015),

stated that relations between siblings play a role in the dynamics of socialization at home. This opinion affirms that children's speech-language ability can develop in the home environment by involving the role of siblings in daily interactions. Parents need to pay attention to the pattern of their sibling's speech-language and interaction patterns with children, so that it needs assistance for siblings so that the pattern of speech is appropriate and can be emulated or emulated by his sister.

2. Relationship between parenting pattern and speech-language ability

The results showed that there was a relationship between parenting pattern and children's speech-language ability and it was statistically significant ($p = 0.015$), where the better the parenting style, the better the child's speech-language ability.

Children who got good parenting had the possibility of 7.58 times greater speech-language ability than those who did not get good parenting style. Apriastuti (2013), stated that there was a significant relationship between parenting pattern and child development if it was controlled by education. Bornstein et al., (2010), stated that an effective way to improve the quality of parenting is by increasing the level of formal education, especially mothers.

Based on the study of Munir et al., (2012), the speech-language ability of children develop well because mothers always train children to speak up to be able to say words, train children to talk while playing, and do it repeatedly until smoothly according to the stages of his age. Children whose language skills are not yet in accordance with the age stage are caused by a lack of harmony between children and mothers and environmental factors that can affect children's language development.

Fatimah (2012), stated that good parenting in children will result in children feeling cared for and will be more confident, so this will form a good child. This will greatly influence the development of children from an early age which includes the development of social, natural, fine motor and gross motor skills. Children who feel cared for and loved by their parents have no fear of associating with others, children are more expressive, creative, not afraid to try new things so that the development of children, especially children under 5 years old, will be maximized.

Good parenting pattern generally includes various aspects to be taught directly to children. Merz et al., (2015), stated that parenting with good language input will facilitate the development of children's vocabulary where it helps children develop various school readiness skills.

3. Relationship between the maternal education and speech-language ability

The results showed that there was a relationship between the maternal education level and children's speech-language ability and it was statistically significant ($p = 0.016$). The higher the maternal education level, the better speech-language ability.

Children who had mothers with a high level of education were 7.84 times more likely to have good speech-language ability compared to children who had mothers with lower levels of education. This was in accordance with a study conducted by Dolla-ghan et al., (1999). He found a strong relationship between maternal education status with Mean Length Utterance, Number of Different Words, and Total Number of Words for children aged 3. From these results, this study concluded that there was an association between the maternal education level with children's speech-language ability.

The relationship between the parental education level and children's speech-language ability was also examined by several other researchers (Tomblin et al., 1997; Hooper et al., 1998; Delgado et al., 2005; Stanton-Chapman et al., 2002; Gottfried et al., 2003).

4. Relationship between maternal knowledge and children's speech-language ability

The results showed that there was a positive relationship between the role of siblings and children's speech-language ability and it was statistically significant. The better the interaction of siblings with the children, the better the children's speech-language ability.

Good maternal knowledge was 9.64 times more likely to have children with good speech-language ability than mothers who did not have knowledge of children's speech-language ability. This was in line with the opinion of Bornstein et al., (2010) and Damast et al., (1996) which stated that parental knowledge will support children's cognitive and language development. Benasich and Brooks-Gunn (1996) added that better stimulation was carried out in the home environment.

Maternal knowledge of children's speech-language ability covered aspects of communication carried out by children including the developmental stages of speech of normal children. However, maternal knowledge of the children's overall development also helped children to develop their language ability better. MacPhee (2002) explains that parental knowledge includes knowledge about the stages of normal development of children, principles of development processes, parenting strategies, and health issues.

Jahromi et al., (2014) reported that parental knowledge influences parental beliefs and practices in relation to their chil-

dren's development. The implication is that parents need to increase their knowledge about children's speech-language ability including understanding the stages of development of children's speech languages, and good communication strategies for children at home.

5. Relationship between sibling role, parenting pattern, maternal education, maternal knowledge, and speech-language ability

The results of the logistic regression test showed that the role of siblings, parenting pattern, maternal level of education, and maternal knowledge had a relationship with children's speech-language abilities.

The involvement of siblings in the interaction and communication at home would help the child's speech-language ability. A good parenting pattern would support the development of children's speech-language ability. The other variables related to children's speech-language ability were the maternal level of education. Mothers with a high level of education allowed mothers to have better insights and perspectives on the development of children's speech-language ability. Then the variable of maternal knowledge about child development had a relationship with the child's speech-language ability. Maternal knowledge of growth and development, especially speech-language ability that were obtained from various sources of information tended to pay attention and care about their children's speech-language ability.

Mothers with insufficient knowledge of children's speech-language ability tended to not care or lack of attention to how their children's speech-language developed. If there was a delay in the speech-language of children, mothers with insufficient knowledge tended to let it be and were considered reasonable because there were such family members in the past who experien-

ced it. If this lasted for a long time, it would be believed to be correct. Weigel et al., (20-07) calls this belief as the parent belief. Parental beliefs become a vital variable in children's language development. Belief here can be in the form of beliefs that are in line with scientific rules and beliefs that are contrary to scientific rules.

Maternal level of education was also related to the child's speech-language ability. A study conducted by Burchinal et al. (2-002) showed that the parental education level is related to children's speech-language ability. The ability of children's language expression is less well developed if they have parental education level below high school. This finding was consistent with previous studies that there was a correlation between parental education and children's language development.

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